



# Utah Department of **NATURAL RESOURCES**

## FOR IMMEDIATE RELEASE

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### **Drought Update for the Week of August 9**

**Salt Lake City** (August 11, 2021) – Drought continues to grip the state, with 99.43% in “extreme” or “exceptional” drought according to the [U.S. Drought Monitor](#). This time last year just over 10% was in “extreme” drought, with nowhere in the “exceptional” drought category.

“The benefits we saw from the recent rainstorms are wearing off with soils once again drying out,” said Utah Department of Natural Resources Executive Director Brian Steed. “We have seen a measurable decrease in water use around the state, which helps keep more water in our reservoirs for later use. We appreciate all those who have reduced their use and ask for continued conservation because we don’t know what the winter will bring.”

The following [drought](#) impacts from the week of Aug. 9 are compiled by the Utah Divisions of [Water Resources](#), [Water Rights](#), [Wildlife Resources](#), [State Parks](#), the [Department of Environmental Quality](#) and the [Department of Agriculture & Food](#).

### **At-a-glance changes for the week:**

- Although **32 of Utah’s largest 42 reservoirs are below 55% of available capacity**, the overall statewide storage remained steady at 53% of capacity. (Utah Lake increased slightly to 55%, and Causey Reservoir dropped below 55%.)
- Of the 97 measured streams, 49 flowed below normal this week compared to 54 last week – potentially due to low evaporation rates and higher soil moisture, which allowed more water to get to streams. Heavy rain storms, like the 600% of normal precipitation events the state recently experienced, typically create very high streamflow spikes. Daily flow from 28 headwater streams is below average for this time of year; however, it is above the previous record minimum. Cumulative runoff from those same streams remains below the previously recorded minimum at about half of average since Oct. 1, 2020.



- Farmers and ranchers continue to face severe effects of the drought.
  - Hay supplies and rangeland conditions remain an issue for farmers and ranchers, with 92% of hay and roughage supplies rated as short or very short and 65% of pasture and rangelands rated as poor to very poor.
  - 88% of irrigation water and stock water supplies are rated as short to very short.
- Eleven boat ramps are currently closed at eight state parks, including Jordanelle, Antelope Island, Echo, Hyrum, Millsite, Piute, Rockport, Willard Bay and Yuba. Caution advisories have also been issued for six additional state park boat ramps. View conditions [here](#).

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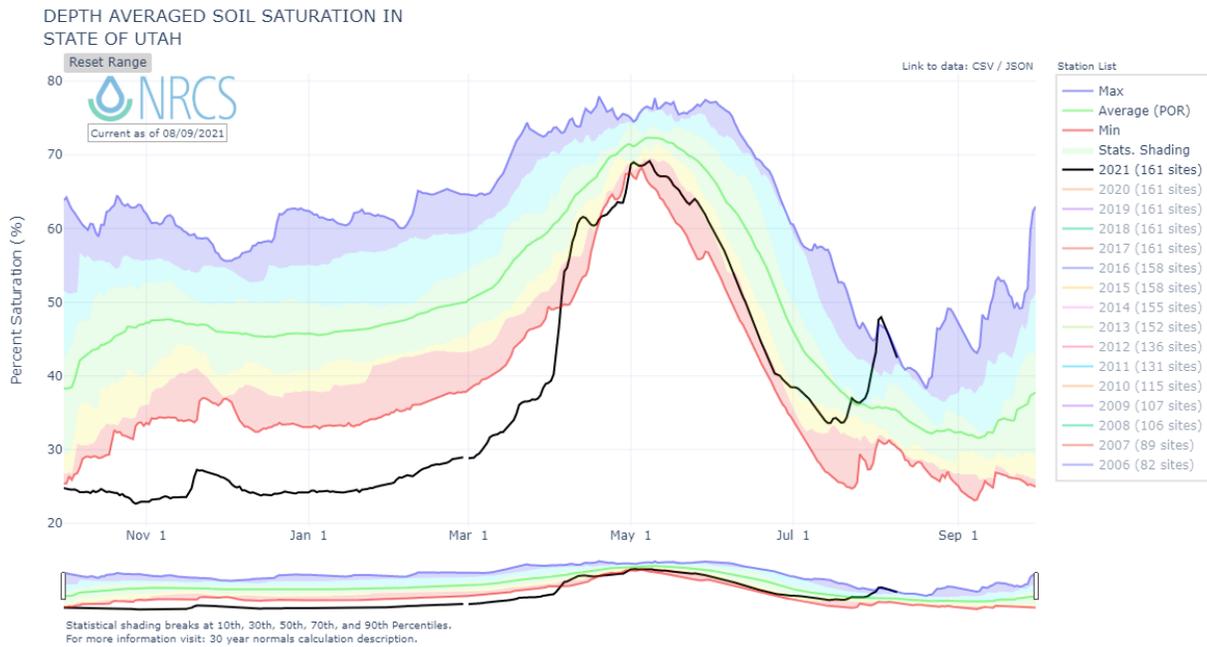
## **FULL REPORT: WEEK OF AUGUST 9**

### **Public Water Systems**

- Boil orders due to E. coli have been issued for wells at a campground in Bryce National Park and Whitebridge campground in Dixie National Forest. Both wells have been taken out of service while the issues causing the contamination are addressed. Changes in flows, including reduced flows due to drought, can contribute to water quality issues.
- Salt Lake City Public Utilities has taken its Big Cottonwood Canyon Water Treatment Plant offline due to ongoing turbidity issues following the recent heavy rains and landslides in the canyon. There has not been any turbidity breakthrough in drinking water, and the system is still able to meet demand through other sources.

### **Precipitation and soil moisture**

- Precipitation accumulation (as measured at NRCS SNOTEL sites) continues to be well below average. To restore conditions to “average” for the year, Utah still needs about 11.5 inches of rain: 8 inches to cancel the deficit and 3.5 inches to account for the precipitation traditionally accumulated from August through September.
- To get streams running at healthy levels while filling reservoirs, Utah needs late summer and early fall storms to return soil moisture levels to normal, which will help snowpack runoff make it to streams and reservoirs rather than get absorbed by dry soils. The state also needs an above-average snowpack to refill reservoirs.
- Air temperatures for the week were 0.8 degrees Fahrenheit below average.
- Overall (mountain and valley locations), the state has seen 67.4% of the precipitation typically received in a normal water year (Oct. 1 through Sept. 30).
- The increase in soil moisture seen around the state after recent rainstorms has started to drop and is 6.9% above average for this water year. Wet soils are critical in the fall as the state begins to accumulate its winter snowpack. As seen in the chart below, significant increases and decreases in soil moisture are typical for late summer.



The rainstorms from last week are reflected as a significant increase in soil moisture followed by a decline in the state soil moisture sensors (found at mountain [SnoTel sites](#)). On July 15, the state's daily average soil saturation was at 33.4%, and just 18 days later (August 2), the daily average was 47.8%, which is above the previous daily maximum. Healthy soil moisture levels allow snowpack runoff to enter the streams and reservoirs rather than get absorbed by dry soils. Monsoonal patterns never occurred the last two years, leading to record dry soils in October 2020 and throughout the winter (reflected in the graph above).

## **Streamflows**

Cumulative flow of 28 headwater streams continues to flow at about 50% of normal.

- Forty-nine (54 reported last week) of Utah's 97 streams reporting data are flowing below normal, which is five less than the previous week.
- Four streams are flowing at their lowest levels ever recorded, nearly as many as last week.
- Daily flow from 28 headwater streams is currently flowing above the previous maximum daily flow record but well below typical for this time of year.

## **Reservoir and Lake Levels**

About 95% of Utah's water comes from snowpack. This statewide average ranges from around 75% in the southwest corner to over 95% in the northern part near the Weber Basin headwaters. Different-sized reservoirs are located throughout the state to catch and store runoff. Small reservoirs store about one year's worth of water, while larger reservoirs, like Strawberry or Jordanelle, store several year's worth. Reservoir storage helps to prevent water shortages and is dependent on snowpack and runoff.

- The capacity of major reservoirs statewide remained about the same as last week. Current storage is 53%.
- Thirty-two of Utah's largest 42 reservoirs are below 55% of available capacity. Utah Lake rose to 55%, and Causey Reservoir dropped below 55%.

- The Great Salt Lake's current elevation dropped slightly the past week to 4191.1, likely due to reduced upstream demand and cloud cover that reduced evaporation. Lake levels are expected to continue dropping until irrigation season concludes, evaporation slows down, and more water flows into the lake.

## GREAT SALT LAKE ELEVATION



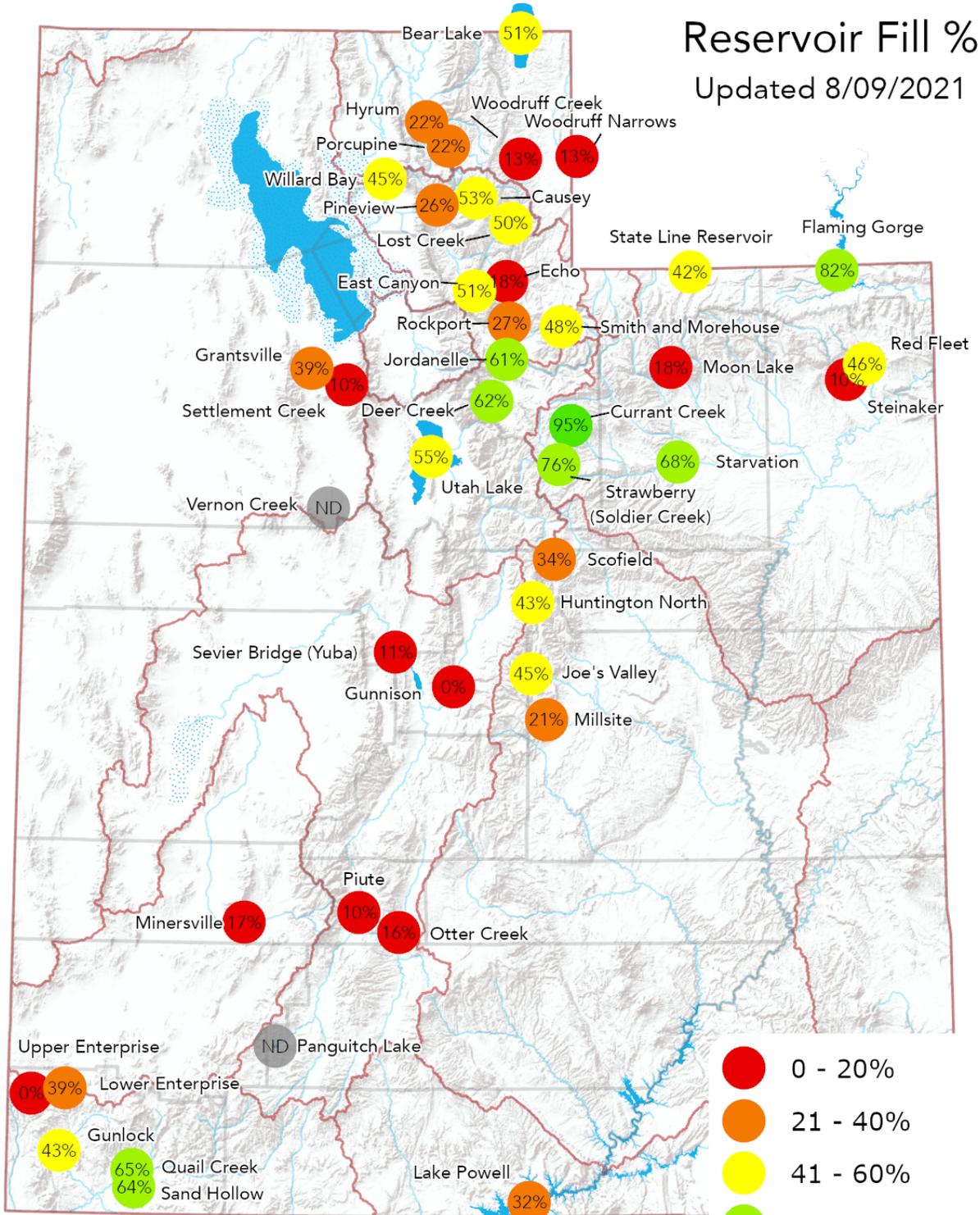
RECORD HIGH  
**4211.65 FEET**

AVERAGE  
**4202.2 FEET**

CURRENT  
**4191.1 FEET**

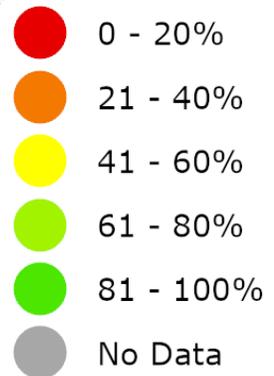
# Reservoir Fill %

Updated 8/09/2021



### Data Sources

Bureau of Reclamation, Bear River Commission,  
 Emery Water Conservancy District,  
 Sevier River Water Users Association,  
 Washington County Water Conservancy District



## **Drought Effects on Priority Distribution of Water Rights in Utah (updated August 9)**

Water rights are distributed by the state engineer with priority going to the earliest rights. For example, a water right established in 1889 is entitled to receive its full flow before water rights established in 1890 or later can receive any water. This principle is called the “Prior Appropriation Doctrine” or “first in time, first in right.” The earliest water rights in Utah are called “direct flow” rights, meaning they cannot be stored. Storage reservoirs were built later on, so storage rights generally have priority dates later than direct flow rights. However, some “high” water rights (direct flow rights with late priority dates) exist.

While public water suppliers own some water rights, others are held by individuals like farmers and ranchers. Priority distribution happens every year, not just during droughts, and occurs irrespective of the type of use. Most water rights are fully or partially curtailed by mid-summer when the natural flow of a stream drops following spring runoff. The term “natural flow” refers to the total supply of a stream, which is generally different from the flow of the stream at any particular point.

Natural flow on complex systems is determined using accounting models developed by the Division of Water Rights. Water can be stored on the system when the natural flow is greater than 100% of the direct flow rights. When the natural flow drops below 100% of the direct flow rights, these rights are reduced according to priority date. Storage, if available, can be released to make up all or part of the deficit. The amount of storage available on each system is a function of the specific projects developed on the system over the last hundred-plus years. This year has seen an early decrease in natural flow because of very little spring runoff. In previous years systems were generally storing water in mid-June, sometimes in considerable amounts, while 2021 is already seeing some of the earliest water rights being curtailed.

While statewide there are many different river systems, the information below highlights water rights priorities, natural flow and direct flow on just four of them. CFS below stands for cubic feet per second.

**Middle Bear River** – Priorities: Direct Flow (1860 - 1909), Storage (1911), High Rights (1914 - 1989)

<i>Date</i>	<i>Priority from River</i>	<i>Natural Flow</i>	<i>% Direct Flow Rights</i>
Aug 5, 2019	1904	994 cfs	71%
Aug 5, 2020	1899	742 cfs	53%
Aug 5, 2021	1889	387 cfs	28%

- The water supply on the Logan River, tributary to the Middle Bear, is third lowest on record out of 58 years (1977 and 1992 were lower) according to the CRBFC Water Supply Forecast (Station LGNU1).
- Currently, only 28% of the direct flow water rights are being met, with earliest priority rights being fulfilled from 1860 to 1889.

**Upper Provo River** – Priorities: Direct Flow (1<sup>st</sup> Class - 17<sup>th</sup> Class), Storage

<i>Date</i>	<i>Priority from River</i>	<i>Natural Flow</i>	<i>% Direct Flow Rights</i>
Aug 9, 2019	80% 1 <sup>st</sup> Class	124 cfs	27%
Aug 9, 2020	40% 1 <sup>st</sup> Class	62 cfs	14%
Aug 9, 2021	40% 1 <sup>st</sup> Class	62 cfs	14%

- The water supply on the Provo River at Hailstone is the third lowest on record out of 67 years (1977 and 1961 were lower) according to the CRBFC Water Supply Forecast (Station PVHU1).

- Currently, only 14% of the direct flow water rights are being met, consisting of only 40% of 1st Class rights.

**Upper Duchesne River – Priorities: Direct Flow (1900 - 1964), Storage (1964)**

Date	Priority from River	Natural Flow	% Direct Flow Rights
Aug 8, 2019	Storage	538 cfs	49%
Aug 8, 2020	1910	193 cfs	17%
Aug 8, 2021	1911	243 cfs	22%

- The water supply on the Duchesne River at Randlett is the second-lowest on record out of 79 years (1977 was lower) according to the CRBFC Water Supply Forecast (Station DURU1).
- Currently, only 22% of the direct flow water rights are being met, with the earliest priority rights being fulfilled from 1900-1911.

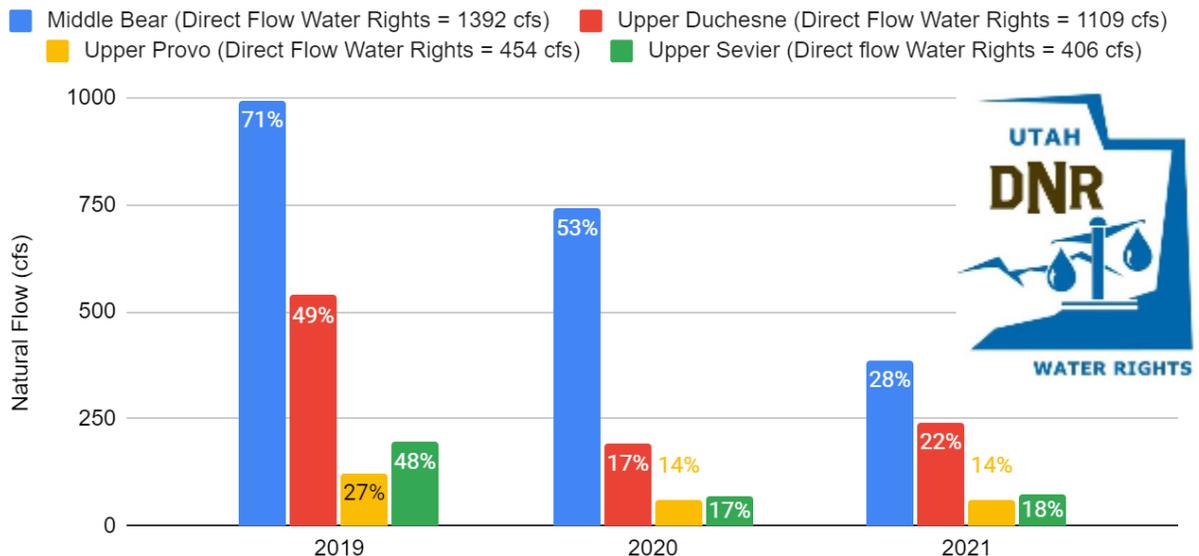
**Upper Sevier River – Priorities: Direct Flow (1<sup>st</sup> Class – 3<sup>rd</sup> Class), Storage**

Date	Priority from River	Natural Flow	% Direct Flow Rights
Aug 8, 2019	66% 1 <sup>st</sup> Class	196 cfs	48%
Aug 8, 2020	23% 1 <sup>st</sup> Class	70 cfs	17%
Aug 8, 2021	25% 1 <sup>st</sup> Class	74 cfs	18%

- The water supply on Salina Creek is the third-lowest on record out of 58 years (1977 and 2018 were lower), according to the CRBFC Water Supply Forecast (Station SAYU1).
- Currently, only 18% of the direct flow water rights are being met, consisting of only 25% of 1st Class rights.

**Natural Flow Distribution on Four River Systems (Aug 9)**

Percent Values Greater than 100 Indicate Water Being Stored



**Well Replacements**

In addition to surface water rights, the state engineer oversees groundwater appropriation and construction of groundwater wells. As groundwater conditions change, well owners may need to replace their well. This may be due to issues with the existing well or the need to drill deeper.

When this happens, a water user files either a replacement or renovate application. In some cases, a change application may need to be filed. This is dependent on the individual status of the user's water right.

- Three new well-deepening applications were filed in the last week. The total number of replacement and deepening requests this year is 98 statewide.
- As a comparison, there were 113 in 2020 and 102 in 2019. The average annual count during the past five years is 107.